

Pharmaceutical Patent Grants in India:

How our safeguards against evergreening have failed, and why the system must be reformed

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Executive Summary

Pharmaceutical Patent Grants in India

Executive Summary

Introduction

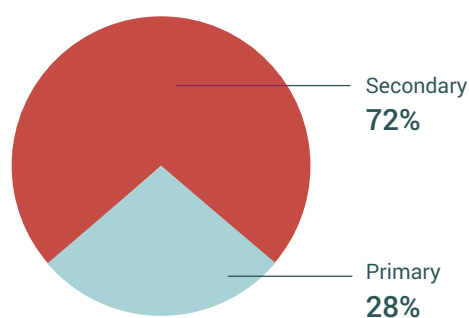
This report identifies pharmaceutical drug patents granted in likely contravention of anti-evergreening provisions under section 3 of the Indian Patents Act, from a cohort of 2293 patents granted between 2009 and 2016. An estimate of the rate at which the Indian Patent Office (IPO) erroneously grants such patents, as well as the rationale for grants were arrived at by analysing the prosecution history of some grants and the claim language of all granted patents.

Extent of Secondary Patenting at the IPO

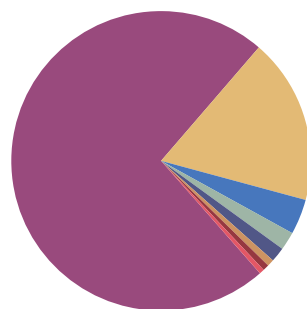
The majority (72%) of granted patents for pharmaceuticals are secondary patents, granted for marginal improvements over previously known drugs for which primary patents exist.

Primary vs Secondary Patents: Proportion and Sub-categories

Primary + Secondary Patents



Secondary Patents



Legend:

- Formulation; 1206
- Combination; 297
- Method of treatment; 63
- Physical Variant; 31
- Use; 24
- Isomer/Enantiomer; 13
- Salt; 11
- Ester/Ether/Prodrug; 9

Various types of secondary patents were deemed to violate distinct statutory exceptions to patentability specified under section 3, including sections 3(d), 3(e) and 3(i).

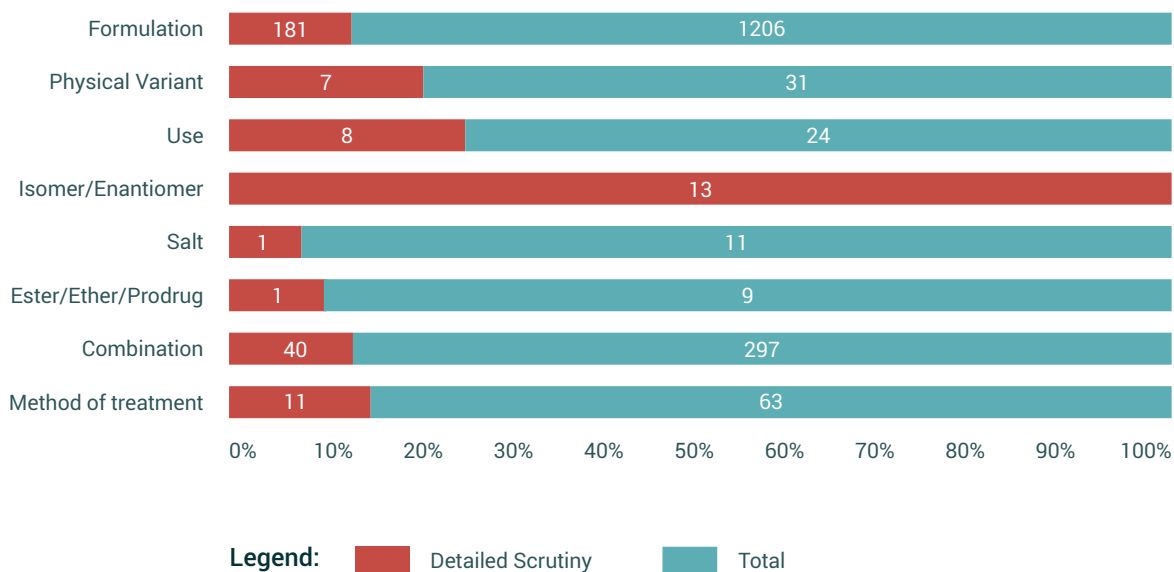
Contraventions of Exceptions to Patentability: The various subcategories of patents are matched to the statutory exceptions to patentability that they likely violate.

Exceptions to Patentability	Counts (as % of Pharma Grants)
3(d) Formulations, physical variant, salts, esters/ether/prodrug, use, isomer	1294 (78%)
3(e) Combinations	297 (18%)
3(i) Method of treatment	63 (4%)

Extent of Secondary Patenting at the IPO

Only a small fraction (15%) of granted secondary patents were subjected to elaborate scrutiny, accompanied by a detailed written order of the Controller. In most cases, the relevant exception to patentability has not been appropriately cited in the final written order.

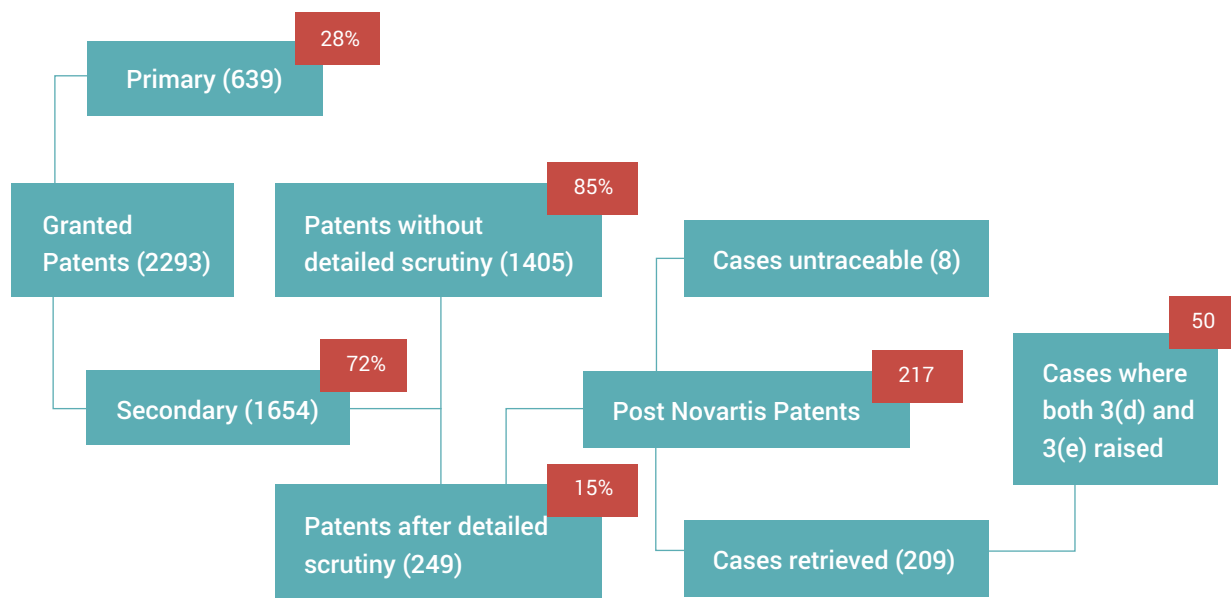
Scrutiny of Secondary Patents: A fraction of secondary patents of each type, if any, are subject to detailed scrutiny at the IPO.



Do Applicants Bypass Stringent Requirements?

Only a small fraction (15%) of granted secondary patents were subjected to elaborate scrutiny, accompanied by a detailed written order of the Controller. In most cases, the relevant exception to patentability has not been appropriately cited in the final written order.

Roadmap to our Report



In 50 cases involving detailed scrutiny, applicants could have demonstrated improved therapeutic efficacy and synergism to overcome sections 3(d) and 3(e) respectively, which are the barriers set to patentability.

No applicant made relevant submissions of clinical data to demonstrate therapeutic efficacy, as stipulated by the Supreme Court's decision in 2013 relating to Novartis' secondary patent on Imatinib mesylate.

Applicants often bypassed stringent requirements under section 3(d) by disguising secondary patents as formulations and/or combinations. This helped to steer the argument away from a section 3(d) citation and towards section 3(e), since demonstrating synergy under section 3(e) is relatively an easier exercise compared to the requirements of efficacy data under section 3(d).

Error Rate at the IPO

Inconsistencies in practice exist at the IPO, even while dealing with different secondary patents for the same drug. Our earlier study demonstrated several instances where the IPO granted some secondary patents for a drug, while rejecting others. Differing standards may impact the access to medicines for a variety of diseases.

Drugs with both granted and rejected patents

Drug Name	Applicant	Indication	No. of Rejects	No. of Grants
Bedaquiline	Janssen	Tuberculosis	2	1
Rosuvastatin	AstraZeneca	Cholesterol	2	4
Ziprasidone	Pfizer	Schizophrenia	1	2
Ibandronate	Roche	Osteoporosis and metastasis-associated skeletal fractures in people with cancer	1	3
Tetrahydrolipstatin	Roche	Obesity	2	3
Vildagliptin	Novartis	Diabetes	1	2
Tiotropium Bromide	Boehringer Ingelheim	Chronic obstructive pulmonary disease	2	15

7 out of 10 patents granted by the IPO are likely granted in error. Since no secondary patent made an appropriate and valid submission, all of them contravene anti-evergreening provisions under Indian patent law.

1.

Introduction

1. Introduction

Intellectual Property plays an important role in the pharmaceutical industry by protecting and securing a marketplace for medicines. At its core are the patents, which disclose new molecular/chemical entities (NMEs/NCEs) and the processes for their synthesis, which forms the bedrock of patents called primary patents. Any improvement or variation to NMEs/NCEs are usually protected by filing secondary patents, essentially alternative forms of already existing primary patents to further extend the protection of already patented drugs. Pharmaceutical companies file secondary patents as a strategy for extending their market exclusivity of the drugs, a practice referred to as “evergreening” as it delays the entry of generic versions of the drug.¹

The Indian Patents Act, 1970 (“Patents Act”), was the cynosure of all eyes when it incorporated certain provisions to prevent the evergreening of pharmaceuticals. These provisions referred to as the anti-evergreening provisions—sections 3(d), 3(e) and 3(i) of the Patents Act, 1970—restricts the patentability of a host of secondary patents, i.e., new forms of known substances, new property or new use of known substances, use of known processes, admixtures without synergistic effect and methods of treatment. Predictably, their legal standing was questioned before the Indian courts. The Novartis case, which questioned the constitutionality of section 3(d) before the High Court at Madras was at the forefront.² Novartis also appealed the decision for rejecting its patent application before the Intellectual Property Appellate Board (IPAB) and later before the Supreme Court of India.³ In order to prevent the practice of evergreening, the Indian courts unwaveringly upheld the legal provisions and rejected the patent application for Novartis’ cancer drug imatinib mesylate. But the manner in which these anti-evergreening provisions were applied by the Indian Patent Office (IPO) while examining other pharmaceutical patents are unclear. In our earlier report, we studied a set of written decisions and analysed how the IPO applied the provisions to prevent evergreening.⁴ The data in that report covered a set of patent applications which were accompanied by a written decision—a speaking order—while rejecting patent applications, pursuant to a proceeding under sections 15 or 25(1).⁵ However, in most cases, the IPO routinely grants a patent without a written decision.⁶ For the purpose of this report, we investigated patents granted by the IPO for pharmaceuticals, regardless of whether such grants were accompanied by a written decision or not. In fact, most of the patent applications covered under this report were not accompanied by a written decision—a detailed scrutiny by the IPO under sections 15 or 21. A grant without a written decision inherently points towards a patent application that has not been subjected to detailed scrutiny.⁷

2.

Background

2. Background

Every patent office operates under an error rate. The error rate refers to the number of patents granted by the patent office which should not have been granted—what is referred to in common parlance as suspect patents. Determining the error rate is a subjective exercise, which involves substantial analysis of the quality of the patents. Every granted patent which is eventually rejected in subsequent proceedings points towards the error rate at which the patent office operates. In India, there are three avenues where a granted patent can be challenged: (1) at the IPO by way of post grant opposition; (2) at the IPAB by way of revocation and (3) at the High Court in an infringement suit by way of counterclaim for revocation. From our earlier studies, we identified patent applications under the IPC classification A61K,⁸ which were initially granted by the IPO but later revoked by the IPO (in post-grant proceedings), IPAB, or the High Court.

Table 1: Patents granted by the IPO but eventually revoked

Application number	Drugs by trade name or active ingredient	Disease	Revoked by
212/MUM/2003	Ciprofloxacin + Dexamethasone	Pain killer (Ophthalmic composition)	IPO
2382/CHENP/2004	Imatinib mesylate	Cancer	IPO
4138/DELNP/2005	Gonal-F	Infertility and Reproductive disorders	IPO
414/MUM/2008	Amphotericin B	Fungal infections	IPO
724/CHENP/2003	Valsartan	Hypertension	IPO

Application number	Drugs by trade name or active ingredient	Disease	Revoked by
IN/PCT/2002/143/CHE	Tadalafil	Erectile dysfunction, hypertension	IPAB
1346/KOLNP/2003	Ganfort (Bimatoprost + Timolol)	Ocular hypertension	IPAB
79/MAS/1998	Zigbir	Viral Infections in Liver	HC

The above table shows that suspect patents exist. However, the actual number of such suspect patents could be greater, since this data only reflects those that were challenged by a third-party intervention.⁹ Our study shows that the patents granted by the IPO, in particular secondary patents, cannot be justified under the standards set out in Indian patent law. Thus, the grant of secondary patents contributes to the error rate.

To estimate the IPO's error-rate in granting suspect patents, we examined patents granted between 1995 and 2016. The chosen timeline allowed us to examine the patent filing and grant trends following the post-TRIPS period when India enacted changes to its patent legislation after becoming a member of the World Trade Organization (WTO).¹⁰ India went through a ten-year transition phase between 1995 to 2005 in implementing the WTO mandate. The transition phase allowed for filing patents on pharmaceutical products that will be examined and granted after 2005, when the regime change took full effect. There was a predilection that known pharmaceutical products which were not offered patent protection in India earlier would be presented before the IPO with trivial modifications. As a counter-measure, the anti-evergreening provisions were introduced in the Patents Act to prevent patent applicants from unjustly extending the term of the original patent.¹¹

3.

Methodology

3. Methodology

The following methodology was followed in this report.

3.1. Data Extraction

We identified all patents granted in India between 1995 and 2016 from the website of the Indian Patent Office.¹² Once all the records for patents granted by the IPO were retrieved, the bibliographic details associated with each record helped us in identifying all granted patents. Since the focus is on pharmaceutical patents, we used International Patent Classification (IPC) classification codes as a source to narrow down patents.¹³ We identified all pharmaceutical patents granted by the IPO under the IPC class A61K, and categorised them as primary or secondary patents based on their claim language.¹⁴ Unlike our earlier report,¹⁵ where we studied rejections of patent applications under several IPC classes (including A61K, A61P, C07C and C07D¹⁶), we restricted this study to patents filed under A61K. This focus is in line with other, similar studies identifying A61K as the major category for pharmaceutical patents.¹⁷ Moreover, the United States Food and Drug Administration's Orange Book, a compendium of patents for marketed drugs, states that 71 percent of drugs fall under A61K.¹⁸

Identified records were then accessed via the IPO website's public search portal, and the complete specifications associated with each record were analysed by a commercially available text-mining algorithm to retrieve all the claims associated with each and every patent document available in HTML format.¹⁹

3.2. Data Mining

The IPC class A61K includes patents other than medical preparations (pharmaceuticals), such as cosmetic and dental formulations medical devices/kits, etc. Patent claims with non-pharmaceutical subject matter were not considered for this report. Even amongst the patents identified as pharmaceuticals, there were patents for products or processes. Since product patents have a greater potential to be exploited for evergreening mechanisms, the focus of this study is primarily on product patents for drugs. Among process patents, those describing methods of treatment using known drugs were identified as instrumental for evergreening practices. Other process patents including methods of synthesis of a particular drug, or a method of manufacture of a formulation may not attract the scope of the anti-evergreening provisions, and hence, we excluded those from our analysis.

There were other categories in our dataset that were medicaments, but not conventional small molecule drugs that fall under the broad class of pharmaceuticals. A large number of patents described biologics as medicaments, which included claims directed towards therapeutic proteins, peptides, nucleic acids, and other biological macromolecules. A significant number of formulations also described plant material and extracts as constituents. We have classified these as a separate category - herbals. Other minor categories included medical devices, nutraceuticals, and homeopathic remedies. In addition to these, several claims with subject matter unrelated to any of the categories listed above were classified as “others” (non-pharmaceutical).

3.3. Classification Protocol

Patents were categorised based on the subject matter of the claims. By convention, the principal independent claim is presented first followed by dependent claims. For this reason, our analysis was limited to the principal independent claim of the patents. Based on the language of the claims, patents were broadly classified as either primary or secondary patents, and further segregated into sub-categories as described below.

All patents were coded manually after reading the principal independent claim and classified them into the relevant category. Each patent was independently coded and verified by two researchers.

The following methodology was followed in classifying the patent claims into primary and secondary claims. In a patent application, one can expect the broadest claim - the claim that seeks the broadest protection, to be mentioned first, followed by narrower claims. We analysed the first claim and used the protocol evolved herein to classify them as primary or secondary patent claims.

1. Primary

Primary patent claims are those that are directed at claiming a particular product or process. A product patent claims a chemical compound, often a chemical structure that encompasses a broad family of compounds with different substitutions. The primary claims would also include both NMEs and NCEs.

2. Secondary

These may be readily distinguished from primary patents based on a claim language and are further classified as:

Formulation/Composition: A new formulation usually covers a known compound. It can use new ingredients (in which case it would be regarded as a primary patent claim) or different combinations of known ingredients (which would make it a secondary patent claim).²⁰ Most drugs are administered in the form of certain formulations where the active ingredient is present as an admixture with excipients. These may pertain to particular dosages, modes of dispensing (tablets/suspension/capsules) and compositions designed for timed release (immediate/sustained release).

Combination: Some formulations might contain more than one single active ingredient, and the claims are directed to a combination of drugs.

Physical Variant: Claims that describe a polymorphic variant of a previously known chemical compound, such as a crystal, amorphous powder, or as having defined particle sizes falls under this category.

Isomers/Enantiomers: Drugs with the same chemical formula, but having different structural configurations are known as isomers or enantiomers. A specific isomeric/enantiomeric form may have improved physical and chemical properties relative to the original drug (which is present as a mixture of such variants), and a patent is often sought for these.

Prodrugs: Some drugs may be administered in a prodrug form, which are metabolically converted into a pharmaceutically active drug within the body before it reaches the target site. Ester or ether conjugated forms of a drug whose activity is known are usually preferred candidates for prodrug variants.

Salts: Salt forms of drugs (such as mesylate, besylate, methane sulfonate, tartarate, etc.) are synthesised as a matter of routine experimentation in the pharmaceutical industry, since they are often known to exhibit improved stability and bioavailability.

Use: Such claims cover newly discovered uses for known compounds.

Methods of treatment: These claims seek protection for the manner of administering particular drugs to individuals/patients for treating diseases.

Since the Claim Classification Protocol (CCP) was evolved incorporating the protections against evergreening under section 3(d) of the Patents Act, the application of the protocol to other categories of drugs such as biologics and herbal patents has not been considered. Further, we have eliminated patents for dental and cosmetic applications from our analysis as they do not come under the criteria of drugs.

The category marked as “Others” could potentially include patents with applications in pharmaceuticals. They have been excluded from this study either because their claim structure was not amenable for analysis using the CCP we had devised, or they were outside the purview of what was traditionally classified as drugs.

3.4. Detailed Scrutiny by the Controller

The Controller of Patents supervises the administration of the Patents Act. He ensures that patent applications are scrutinised before being granted.²¹ The two provisions where the Controller can reject a patent application are sections 15 and 25(1). Section 15 proceedings are initiated by the Controller when the patent application does not comply with the requirements of the Act and the Rules. Similarly, section 25(1) proceedings are initiated when a third party has raised objections to a pending patent application. Both these provisions are resorted to when there is an inherent issue that requires a detailed examination by the Controller through a written order. Since these orders require thorough examination by the Controller, we consider them as orders pursuant to detailed scrutiny. All the patent applications granted without any such written orders have bypassed this detailed scrutiny process.

4.

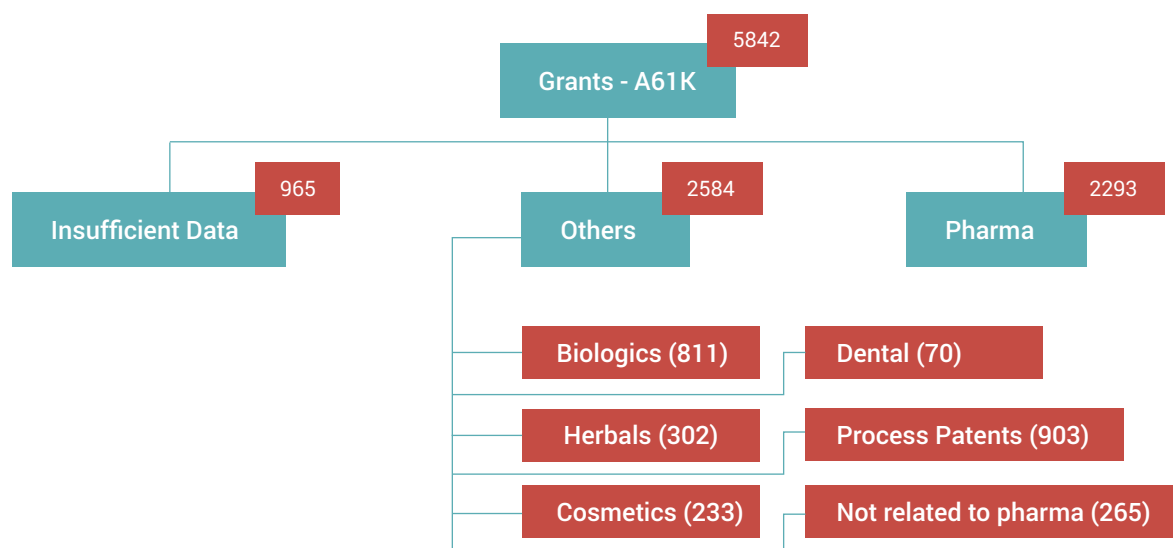
Analysis

4. Analysis

4.1. Data Extraction

Our methodology involving CCP enabled us to analyse 2293 patents. We had initially identified 5842 granted patents based on the IPC classification A61K for the years 1995 to 2016. However, we could not retrieve 965 patents due to “insufficient data” and 2584 patents fell outside the scope of our present report (see Figure 1).²² Moreover, process patents (with the exception of ‘methods of treatment’) do not pose a significant barrier for competitors, owing to their narrow scope of protection when compared to product patents and hence were excluded from our analysis.

Figure 1: Data Categorisation: The dataset of A61K grants based on the claim classification protocol



Based on the CCP, the granted pharmaceutical patents were classified into primary and secondary. A large share belongs to secondary patents (72%) and the remaining 28% belongs to primary patents (see Figure 2). These secondary patents were further segregated into subcategories based on their claim language, chief among them were directed to formulations, compositions, and combinations (91%).²³ Much of the formulations and combinations would come under the purview of section 3(d), which covers “combinations and other derivatives of known substance”,²⁴ as well as under section 3(e),²⁵ which covers “substance obtained by a mere admixture resulting only in the aggregation of the properties of the components or a process of producing such substance”. Another 5% of secondary patents that pertain to the new form or new use of known substance (polymorphs, salts, esters, ethers, prodrugs, or isomers & enantiomers, along with new uses for known substances) would also attract the provisions of section 3(d). The remaining 4% corresponds to methods of treating an individual for a disease, specifying a particular dosage regimen or a mode of administering a drug. Though the claims as filed were in contravention to section 3(i), the applicants were able to carry out minor changes to the language of the claim to get over the objections. These claims may have been granted in contravention of section 3(i) (see Figure 3, Table 2).

Figure 2: Comparison of primary and secondary pharmaceutical patents

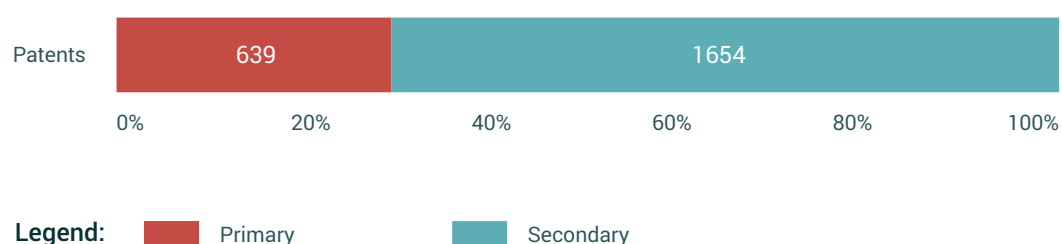


Figure 3: Secondary patent categories

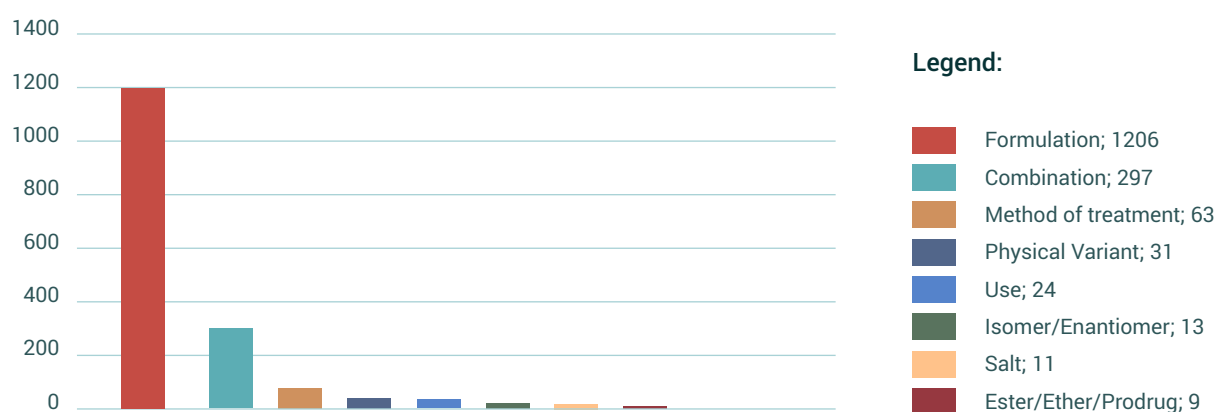
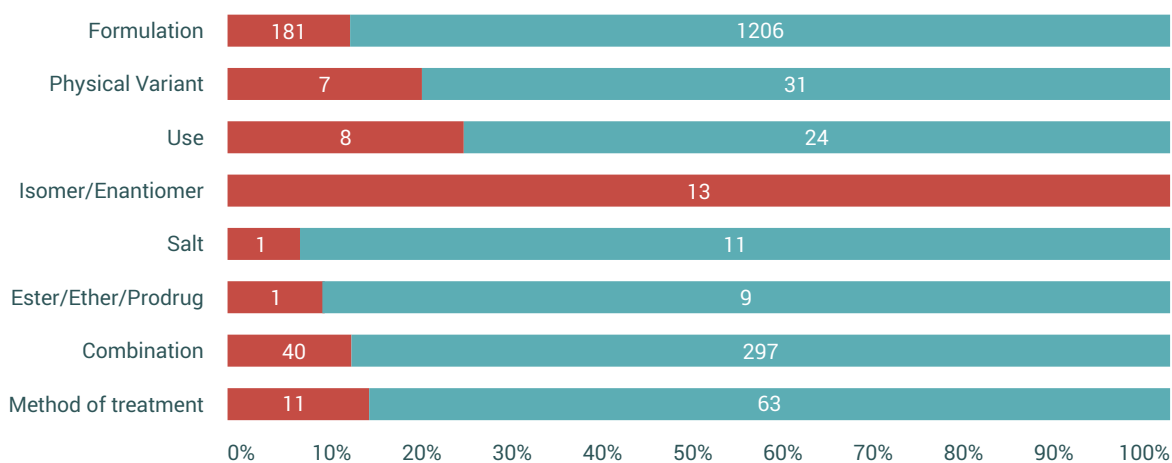


Table 2: Contraventions of exceptions to patentability: The various subcategories of patents are matched to the statutory exception to patentability that they likely violate.

Exception to patentability	Exception to patentability
3(d) Formulations, physical variant, salts, esters/ether/prodrug, use, isomer	1294 (78%)
3(e) Combinations	297 (18%)
3(i) Method of treatment	63 (4%)

The measures of protection against evergreening did not result in the effective screening of potentially suspect patent applications which could fall within the purview of anti-evergreening provisions. This refers to cases where objections raised by the IPO would result in an adverse outcome for the application (either rejection or amendment), and the applicant was given an opportunity to be heard and to present their arguments before a final decision was reached. All the 1654 patents are well within the scope of anti-evergreening provisions, which ideally would demand a detailed scrutiny by the Controller.²⁶ To our surprise, only 15% of the granted secondary patents (249) were subjected to a detailed scrutiny and the remaining 85% proceeded towards a grant without any detailed scrutiny (see Figure 4).

Figure 4: Extent of detailed scrutiny across secondary patent categories



Legend: ■ Detailed Scrutiny ■ Total

4.2. How Patentees Overcame the Anti-Evergreening Provisions

As explained in the previous part, sections 3(d), 3(e), and 3(i) refer to the anti-evergreening provisions incorporated under the Patents Act. However, all these provisions are not absolute and the applicants can overcome some of these objections by presenting the relevant material to the IPO. The three anti-evergreening provisions can be further classified into two categories—conditional exceptions, where the applicant can overcome the objections and absolute exceptions, which are devoid of conditions.

Conditional exceptions: The conditional exceptions include the first and the third part of section 3(d), and section 3(e):

- a. The first part of section 3(d) stipulates that the mere discovery of a new form of a known substance which does not enhance the known efficacy of that substance is not patentable.
- b. The third part of section 3(d) states that the mere use of a known process, machine or apparatus, unless such known process results in a new product or employs at least one new reactant, shall not be a subject matter of a patent.
- c. Section 3(e) includes a category of invention obtained by a mere admixture which cannot be patented if it results only in the aggregation of the properties of the components. However, if the admixture results in unexpected results or synergistic properties then such mixtures can be patentable.

Absolute exceptions: The absolute exceptions include the second part of section 3(d), and section 3(i):

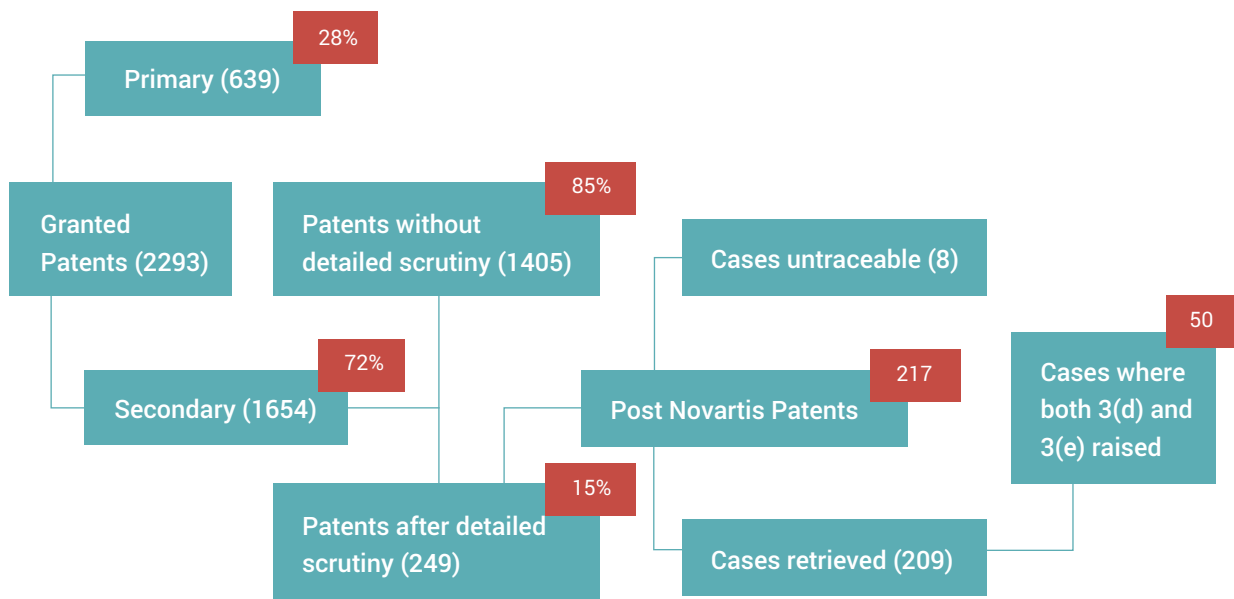
- a. The second part of section 3(d) provides that the mere discovery of any new property or new use for a known substance is not patentable under any circumstance.
- b. Section 3(i) prohibits patenting any process for the medicinal, surgical, curative, prophylactic, diagnostic, therapeutic or other treatment of human beings or any process for a similar treatment of animals to render them free from disease or to increase their economic value.

To understand how the patentees overcome the objections under these anti-evergreening provisions, we analysed the 249 granted secondary patents that were subjected to detailed scrutiny (see Figures 4 & 5).²⁷ However, in the absence of any detailed written order, we could not gauge how the remaining 1405 secondary patents were granted, which bypassed the anti-evergreening provisions.

After 1 April 2013, every pharmaceutical patent has to pass the standards set by the Supreme Court in the Novartis case (“The Novartis Standard”).²⁸ Thus,

we identified the Novartis decision as a point where the law with regard to section 3(d) was laid down clearly by the highest judicial authority. In 2014, the IPO framed a new set of guidelines for examining pharmaceutical applications incorporating some of the findings in the Novartis case.²⁹ With Novartis as the benchmark for pharmaceutical patents, we identified 217 patents granted by the IPO with a written order post Novartis. Of the 217, we could not retrieve documents for 8 cases. For the remaining 209, we navigated through the written orders to find references for objections under sections 3(d), 3(e) or 3(i). This dataset offered us a chance to scrutinise a way in which the IPO understood and applied the law. In addition, we have seen cases wherein applicants cite section 3(e) to overcome objections raised under section 3(d). To keep away from this bias, we analysed cases where both sections 3(d) and 3(e) were raised, which paved way for analysing 50 granted secondary patents. We classified all the 50 cases into seven categories based on the manner in which the applicant tried to overcome sections 3(d) and 3(e) and later compared them with the Novartis standard (see Figure 5).

Figure 5: Road map to our report



4.3. Categories of the Submissions

The applicants employed various strategies in all the 50 cases to overcome sections 3(d) and 3(e). We have mapped these strategies into 7 categories, some of which might overlap with the other categories, as detailed below (see also, Annexure II):

- (I) **The objection will not fall under section 3(d) but shall fall under section 3(e)**— Under this category, there were 50 cases where the applicants argue that the relevant provision applicable for the patent application is section 3(e) and not section 3(d), or would use section 3(e) to divert the IPO's focus from section 3(d). By shifting the focus to a different provision, the applicants were able to shift the focus away from the applicability of section 3(d), thereby overcoming the need to demonstrate enhanced therapeutic efficacy. In contrast, under section 3(e), the applicant needs to show only synergistic effect in the combination. A common strategy has been to draft a formulation/composition/combination claim to move the application away from the scrutiny of section 3(d). In some cases, the decision granting the patent refers to the IPAB decision in *Ajantha Pharma Ltd v. Allergan Inc.*³⁰ which finds mention in the 2014 pharmaceutical guidelines.³¹ The relevant quote is as follows:

"The combination mentioned in the Explanation can only mean a combination of two or more of the derivatives mentioned in the Explanation or combination of one or more of the derivatives with the known substance which may result in a significant difference with regard to the efficacy."

The Allergan case is cited as a binding authority to remove the applicability of section 3(d) in cases where the combinations are involved. Though the IPAB makes the above observation in the Allergan case, the issue of applicability of section 3(e) was not considered as the IPAB had rejected the patent on the grounds of patentability. This passing observation made by the IPAB is untenable because there is not a single instance where a patent applicant combined different forms of the same substance in a pharmaceutical product. Such a narrow interpretation would give an easy way out for the applicants to get over section 3(d) objections for combinations and defeat the very objective of the section. Moreover, keeping in mind the wide-spread practice in the pharmaceutical industry of creating new compositions/combinations, the reference to combinations in the explanation should be given an expansive meaning to cover combinations with other substances.

- (II) **Objections under sections 3(d) or 3(e) was overcome using justifications under section 2(1)(j)** – Under this category, there were 19 cases wherein the anti-evergreening objection under section 3 was overcome by citing justifications under section 2(1)(j). In the Novartis case, the Supreme Court held the conditions of section 2(1)(j) (conditions of patentability) to be different from those of section 3 (exceptions to patentability). The court avoids the issue of categorising section 3(d) as a standard of

patentability or as an extension of definition of invention.³² Surprisingly, the IPO's inclination to overcome section 3 objections by considering justifications under section 2(1)(j) is baffling and against the law of the land.

- (III) **No data regarding therapeutic efficacy or synergism was produced in the order** – Under this category, there were 12 applications where no data pertaining to sections 3(d) or 3(e) was produced in the order but nevertheless the patents were granted. There could be instances where the data was supplied to the IPO, but it is critical that such data be captured in the written decision granting the patent.
 - (IV) **Sufficient reasons not provided in the order** – Under this category, 8 patents were granted without any reasoning on how the applicant overcame the objection.
 - (V) **The claims were amended to overcome objections under sections 3(d) or 3(e)** – Under this category, 16 patent applications overcame the objections by amending the claim language.
 - (VI) **Data was shown to prove therapeutic efficacy under section 3(d)** – Under this category 9, patents were granted where the order of the Controller cited that the data was shown to prove therapeutic efficacy.
 - (VII) **Data was shown to prove synergistic effect under section 3(e)** – Under this category, 12 patents were granted where the order of the Controller cited that the data was shown to prove synergistic effect.
-

4.4. *The Novartis Standard*

The Supreme Court has laid down certain principles to overcome the objections under section 3(d). These principles were established by the Court while upholding the IPO's decision rejecting Novartis' patent application for the cancer drug Imatinib Mesylate.³³

These principles can be listed out from the Supreme Court decision as follows:

1. Identifying the new form of the known substance and its pharmacological properties such as efficacy (Paras. 157; 160; 161);
2. Comparing the pharmacological properties of the known substance with the new form of the known substance (Para. 163);
3. Providing comparative material on enhanced efficacy in the patent application or by affidavits (Para. 171);
4. Excluding physico-chemical properties like "more beneficial flow properties", "better thermodynamic stability", and "lower hygroscopicity" for considering therapeutic efficacy (Paras. 173, 187);
5. In the case of medicines, the test of efficacy can only be therapeutic efficacy which should be judged strictly and narrowly (Para. 180);
6. The applicant has to specifically claim and establish by research data correlating bioavailability to enhanced therapeutic efficacy (Para. 189);
7. For patents involving new forms of known substances in chemicals and pharmaceuticals, the test of enhanced efficacy should be proved in addition to the fact that the patent application is an "invention" and involves an "inventive step" (Para. 192)

Compliance with the above standards would require: (a) Demonstration on the part of the applicant to include efficacy data either in the specification/affidavit; (b) Determination and recording the reasons in a written order by the Controller.

These principles remain a gold standard in overcoming objections under section 3(d). The IPO should mandatorily follow these standards while granting pharmaceutical patents. However, on close analysis of the prosecution history of the 50 cases we found that none of these cases met the standards set out in the Novartis decision.

4.5. Curious Cases Involving Therapeutic Efficacy

In our analysis, we have not seen a single instance where the applicant had satisfactorily demonstrated therapeutic efficacy using clinical data. On the contrary, there were cases where the applicant had indicated that clinical trials would be done in the future.³⁴ The Supreme Court clarified efficacy of medicines as therapeutic efficacy and it will be impossible for applicants to demonstrate therapeutic efficacy, since it can only be proven through clinical trials. In a separate analysis, we reviewed the following three cases wherein the patents were rejected by the IPO on the basis of lack of efficacy of data.

- (a) In an application filed by Gilead for Sovaldi® (sofosbuvir) used in the treatment of Hepatitis C, it was contended that therapeutic efficacy has to be established by means of filing comparative data. The IPO refused the grant of the patent by holding that the application had failed to meet the requirement of section 3(d). The Controller held that clinical trials are necessary to prove an increase in therapeutic efficacy. It further held that a compound disclosed that was structurally close to the claimed compound was considered to be the same compound under section 3(d) and that cytotoxicity data was insufficient to prove significant increase in therapeutic efficacy.³⁵
- (b) In an application filed by Bayer, the IPO again refused the application for a secondary patent for the drug Nexavar® (sorafenib tosylate), used in the treatment of certain cancers, pursuant to pre-grant opposition.³⁶ One of the grounds on which the application was challenged was that certain claims were not patentable under section 3(d). The Controller held that the claim of the applicant had no legal standing in the absence of any clinical trial results demonstrating terms of therapeutic efficacy. All the data furnished by the applicant pertained to physical attributes such as storage, stability, and bioavailability studies. On the basis of the Novartis decision the Controller held that the data was insufficient to demonstrate efficacy.³⁷
- (c) In the case of a granted patent by Boehringer, leading generic drug manufacturing company Cipla Ltd., filed a post-grant opposition against the former's patent for the drug Spiriva® (tiotropium bromide) used in the treatment of chronic obstructive pulmonary disease.³⁸ One of the several grounds of opposition filed by Cipla Ltd., was that the patent was not a patentable invention within the meaning of section 3(d). The Controller held that clinical trial data or research data demonstrating efficacy is necessary to prove therapeutic efficacy. The Controller rejected data supplied by the patentee to show an increase in bioavailability of the drug cannot be considered in assessing the therapeutic efficacy of the drug. Further, the Controller also held that the affidavits submitted by the patentee did not disclose any actual facts or trials and were therefore not improvements. The patentee's argument that enhanced therapeutic efficacy be evaluated on a case-to-case basis was also brushed aside with the IPO holding firm that only clinical trials could provide such data.

Though the Supreme Court states that section 3(d) does not bar patent protection for all incremental inventions of chemicals and pharmaceutical substances,³⁹ the impact of the Novartis standard evolved by the Supreme Court would mean that the applicants may not be able to prove therapeutic efficacy at the IPO. As also from the above decisions, it is clear that the IPO only considers data from clinical trials as appropriate to establish an increase in therapeutic efficacy in the case of pharmaceuticals. And thereby, making it harder for applicants to overcome section 3(d). None of the 50 cases we studied complied with the high standards earlier set by the IPO, but still managed to bypass this barrier and get granted.

4.6. Rejection of Secondary Patents by IPO

We wanted to trace a common link between our earlier and present reports to determine whether the IPO has differing standards in examining similar patent applications.⁴⁰ Based on the analysis for both our reports, we were able to identify 7 individual drugs, targeting a wide spectrum of diseases, for which similar secondary patent applications were both rejected and granted by the IPO (see, Table 3). There were 41 secondary patent applications associated with these 7 drugs, of which 30 were granted and 11 were rejected by the IPO.

Every applicant had a mix of both granted and rejected secondary patents. The fact that the IPO has differing standards in examining patent applications pertaining to the same drug filed by the same applicant is troubling, as the grant of even a single patent on these applications can lead to evergreening practices, impacting equitable access to medicines.

Table 3: Drugs with granted and rejected patents

Drug Name	Drug Name	Indication	Rejected Application(s)	Granted Secondary Patent(s)
Bedaquiline	Janssen	Tuberculosis	5213DELNP/2007; 9841/DELNP/2007	6315/DELNP/2006;
Rosuvastatin	AstraZeneca	Cholesterol	1213/DELNP/2006; 1319/DELNP/2006	111/MUM/2000; 1649/DELNP/2006; IN/PCT2002/00112/MUM; IN/PCT/2002/00867/MUM
Ziprasidone	Pfizer	Schizophrenia	579/DEL/2007	842/DEL/1999; 1156/DEL/1997

Drug Name	Drug Name	Indication	Rejected Application(s)	Granted Secondary Patent(s)
Ibandronate	Roche	Osteoporosis and metastasis-associated skeletal fractures in people with cancer	3102/CHENP/2006	2895/CHENP/2007; IN/PCT/2001/484/CHE; IN/PCT/2002/1103/CHE
Tetrahydrolip-statin	Roche	Obesity	190/MAS/1998; 625/CHE/2006	136/CHENP/2003; IN/PCT/2002/345/CHE; IN/PCT/2002/354/CHE;
Vildagliptin	Novartis	Diabetes	8973/DELNP/2007;	1724/CHENP/2006; 2701/CHENP/2004;
Tiotropium Bromide	Boehringer Ingelheim	Chronic obstructive pulmonary disease	9170/DELNP/2008; 628/DELNP/2003	121/DEL/2000; 192/DELNP/2006; 382/MUMNP/2005; 00649/DELNP/2003; 1473/DELNP/2006; 1501/MUMNP/2006; 2174/DELNP/2005; 2192/DELNP/2004; 2420/DELNP/2004; 2968/DELNP/2008; 3079/DELNP/2004; 37 19/DELNP/2006; 7638/DELNP/2006; IN/PCT/2000/00736/MUM; IN/PCT/2002/00790/MUM;

4.7. Estimating the Error Rate for Grants at the IPO

The results of our study bear an implicit assumption that all secondary patents for pharmaceuticals are granted in likely contravention of the statutory exceptions under sections 3(d), 3(e) and 3(i). We set out to examine the error rate by the IPO for all secondary patents assuming that they are granted in contravention of section 3. However, on the face of it, not all these patents are suspect, as in some cases the applicants have an option to overcome section 3 objections by fulfilling certain conditions. An accurate error-rate can therefore be arrived by taking into account such submissions made in all instances where a secondary patent has been granted. This would entail a thorough examination of the prosecution history for each application to help understand the circumstances which led to the grant. We applied the Novartis Standard for meeting the conditions imposed by certain (conditional) exclusions under section 3 in all cases where a submission setting out the same was seen and approved by the IPO as having satisfied the condition.

The detailed analysis of the prosecution history of 50 cases (see Annexure II) revealed that in none of these cases has the applicant satisfactorily surmounted the barrier set by the Novartis case, or surmounted the threshold set by the IPO's earlier decisions, i.e. all these patents are suspect or bad patents which ought not to have been granted at the first place.

The result of our thorough investigation and analysis of pharmaceutical patent applications suggests that the IPO is operating at an error rate as high as 72%. This error rate corresponds exactly to the percentage of all pharmaceutical patents that have come before the IPO that can be classified as secondary patents, and that the IPO has, in turn, granted.

5.

Conclusions

5. Conclusions

Based on the CCP evolved for this study, we have shown that the IPO has an extremely high error-rate in granting pharmaceutical applications, to the tune of 72%. To conclude, 1654 secondary patents were granted by overcoming anti-evergreening and other rejections that could be raised by the IPO. This corresponds to an error rate as high as 72% of secondary patents, of which 1206 were granted for formulations/compositions, 297 for combinations, 88 for physical variants, uses, salts, isomers, enantiomers and prodrugs, and 63 for a method of treatment.

6.

Recommendations

6. Recommendations

In order to identify secondary patents at the application stage and ensure that suspect patents are not granted, we have the following three recommendations, which may be implemented in a phased manner:

6.1. Update the Guidelines for Examining Pharmaceuticals

In October, 2014, the IPO came out with the Guidelines for Examination of Patent Applications in the Field of Pharmaceuticals.⁴¹ The objective of the document was “to help the Examiners and the Controllers of the Patent Office in achieving consistently uniform standards of patent examination and grant.”⁴² The Guidelines do not expound on how the anti-evergreening provisions should be applied while examining a patent application.⁴³ Similarly, there is little discussion on how the IPO has applied sections 3(e) and 3(i). Given that the IPO has now examined thousands of applications and their validity vis-a-vis sections 3(d), 3(e) and 3(i), a more detailed account on how the IPO has applied these provisions in practice should have been provided. We have identified 7 categories commonly used by applicants in responding to objections under section 3 and explained the principles laid out by the Supreme Court in the Novartis Case (the “Novartis Standard”). The guidelines should lay down the Novartis Standard as stated by the Supreme Court rather than quoting paragraphs from the judgment, factor the best practices of the IPO in applying these provisions and provide clear instructions to the extent possible on what is patentable and what is excluded. Further, we recommend the Guidelines to be updated on a regular basis.

Applicability of the ruling in Novartis case—the Novartis Standard

Our study shows that there is nothing that guides the Examiners and the Controllers on the application of the anti-evergreening provisions—sections 3(d), 3(e) and 3(i). Though the Novartis judgment of the Supreme Court makes

a distinction between the inventiveness requirement under section 2(1)(j) and exception to patentability under section 3(d),⁴⁴ we noted instances where the Controller granted patents misinterpreting the section 3(d) argument as criteria of inventiveness. Thus, we recommend that the seven principles borne out of the Novartis case, must be included as a part of the guidelines in examining pharmaceutical applications. The IPO should strictly adhere to these principles while deciding an objection under section 3(d).

6.2. Implement an Anti-evergreening Checklist for Examiners

The common format for sending the First Examination Report (FER) by the IPO to the patent applicant does not have any checklist on detecting secondary patents. We recommend that every application that is suspect of secondary patenting must undergo detailed scrutiny at different levels. This could be done by enhancing the disclosure standards for applications that would potentially attract the language of the anti-evergreening provisions. The IPO will benefit from improving the disclosure requirement for secondary patents by requiring the patent applicant to indicate that the claimed invention is for a secondary patent and to demonstrate the technical advancement in view of the heightened standard of inventive step in section 2(1)(ja). Unfortunately, the Novartis case exclusively deals with only the first part of section 3(d)—i.e., the mere discovery of a new form of a known substance. Similarly, the pharmaceutical guidelines by the IPO captures only a portion of the bigger picture that is discussed in the Novartis case while being completely silent on all other aspects of anti-evergreening provisions. Thus, we recommend that there is a need for creating an anti-evergreening checklist (see Annexure III) for examiners which ought to be included along with the FER when the patent applications fall within any one of the IPC codes allocated to pharmaceutical inventions i.e., A61K, A61P, C07C and C07D.

6.3. Amend Indian Patent Law to Remove Conditions for Certain Exclusions Under Section 3

Our study reveals that at several instances the provisions on anti-evergreening were subject to misuse by the applicants owing to the conditional exceptions on patentability. We have seen that the Controller granted patents misinterpreting section 3(d) argument as criteria of inventiveness. Even in the cases where the applicant responded to the objections on section 3, they had employed different approaches as characterised in our categories I to VII (see part 4.3). Some of the approaches are untenable and will not hold good on judicial scrutiny. As we have noted, the easiest way to get over a section 3(d) objection is by legal argument—by arguing that the patent application does not attract section 3(d) by section 3(e) as it pertains to a combination of known substances. This creates substantial barriers in achieving the public policy objectives of the anti-evergreening provisions. As we have seen, in most cases secondary patents escape the allegedly stringent provisions on ever-greening resulting in the grant of bad patents. Thus we recommend that there must be a complete bar on secondary patents. The conditional exceptions under sections 3(d) and 3(e) should be amended to include all kinds of secondary patents.

7.

Acknowledgements

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Glossary of Sections Quoted

Section 2(1)(j):- Definition of 'Invention' as given in Patent Act, 1970

A new product or process involving an inventive step and capable of industrial application.

Section 2(1)(ja):- Inventive Step

A feature of an invention that involves technical advance as compared to the existing knowledge or having economic significance or both and that makes the invention not obvious to a person skilled in the art

Section 3:- Deals with statutory exceptions to patentability

3(d):- the mere discovery of a new form of known substance which does not result in the enhancement of the known efficacy of that substance or the mere discovery of any new property or new uses for a known substance or of the mere use of known process, machine or apparatus unless such known process results in a new product or employs at least one new reactant.

3(e):- A substance obtained by a mere admixture resulting only in the aggregation of the properties of the components thereof or a process for producing such substance.

3(i):- Any process for the medicinal, surgical, curative, prophylactic [diagnostic therapeutic] or other treatment of human beings or any process for a similar treatment of animals to render them free of disease or to increase their economic value or that of their products.

Section 15:- It deals with power of the Controller to refuse the patent application.

Under this section, if the Controller is not satisfied with a patent application due to non-compliance with requirements of the Act, he may refuse the application or seek amendments before he proceeds with the application, and refuse the application on failure to do so.

Section 25(1):- This section makes provision for third parties to file their opposition against the patent application before the concerned Patent Office. This opportunity is given, when an application for a patent has been published but a patent has not been granted.

End Notes:

¹Pharmaceutical Sector Inquiry (2009) http://ec.europa.eu/competition/sectors/pharmaceuticals/inquiry/staff_working_paper_part1.pdf (last visited Apr 10, 2018).Id.

²Novartis AG v Union of India, High Court of Judicature at Madras, (2007) 4 M.L.J. 1153.

³Novartis AG v Union of India, IPAB, TA/1/2007/PT/CH of Order No. 100/209; Novartis AG v Union of India, Supreme Court of India, AIR 2013 SC 1311.

⁴Feroz Ali et al, Rejected in India - What the Indian Patent Office got Right on Pharmaceuticals Patent Applications (2009-2016) 37 (2017), <http://accessibsa.org/media/2017/12/Rejected-in-India.pdf> (last visited Oct 4, 2018) [hereinafter, "Rejected in India Report" or "earlier report"]

⁵The IPO rejects an application either under section 15 or under section 25(1) of the Patents Act, 1970. Section 15 rejections are done by the IPO on its own without the involvement of third parties, whereas section 25(1) rejections result from a pre-grant opposition filed by an opponent or opponents.

⁶The data set analysed for the earlier report included only the decisions accompanying the rejections. In 249 cases, the IPO's order of grant was accompanied by a written decision. Given the methodology adopted for this study, grant decisions were not looked into in detail.

⁷As detailed in the methodology section, the study makes the assumption that the patent applications that were not accompanied by a written decision were not subjected to a detailed scrutiny. This approach however discounts the time spent by the IPO in office action, i.e., the time taken to prepare the First Statement of Objections or First Examination Report (FER) and in scrutinising and responding to the replies given by the patent applicant. An FER is issued in normal course for every patent application that is examined by the IPO. A detailed scrutiny refers to an order passed by the IPO pursuant to proceedings under sections 15 and 25(1).

⁸The Organisation for Economic Co-operation and Development (OECD) statistics, the online statistical platform of the OECD, classifies patent in pharmaceuticals on the basis of the patents filed in IPC class A61K ("Human Necessities; Medical or Veterinary Science; Hygiene; Preparations for Medical, Dental, or Toilet Purposes") excluding A61K8 ("Cosmetics and similar toilet preparations").

⁹The patents challenged by a third party intervention are regarded as valuable patents. See, John R. Allison et al., *Valuable Patents*, 92 GEO. L.J. 435 (2003–2004).

¹⁰TRIPS stands for Trade Related aspects of Intellectual Property Rights. TRIPS is one of the agreements in the WTO.

¹¹Feroz Ali, *The Access Regime: Patent Law Reforms for Affordable Medicines* 42–47 (2016).

¹²We identified the patent applications for A61K filed after 1995 to include the applications for pharmaceutical products filed during the TRIPS transition period availed by India. The post-1995 applications for pharmaceutical products could only be filed using the mailbox provision and were eventually examined after 2005 allowing us to study the impact of anti-evergreening provisions introduced in 2005. The information on the patents was accessed from <http://ipindiaservices.gov.in/publicsearch/>

¹³International Patent Classification (IPC), <http://www.wipo.int/classifications/ipc/en/index.html> (last visited Apr 10, 2018). The International Patent Classification (IPC), established by the Strasbourg Agreement 1971, provides for a hierarchical system of language independent symbols for the classification of patents and utility models according to the different areas of technology to which they pertain. See International Patent Classification (IPC), <http://www.wipo.int/classifications/ipc/en/index.html> (last visited Apr 10, 2018).

¹⁴Supra note 8; There are other IPC classes apart from A61K, such as C07D (“Heterocyclic Compounds”) that may be relevant in identifying pharmaceutical patent applications which are not a part of this study.

¹⁵Rejected in India Report

¹⁶In this study, A61K alone yielded ~5900 patents to analyse, while in our earlier report, A61K, A61P, C07C, and C07D pooled together gave us ~1700 applications to study closely. Under the International Patent Classification (IPC) maintained by the WIPO, pharmaceutical patents applications may fall under the following IPC classes: A61K (Preparations for Medical, Dental, or Toilet Purposes), A61P (Specific Therapeutic Activity of Chemical Compounds or Medicinal Preparation), C07C (Acyclic or Carbocyclic Compounds), and C07D (Heterocyclic Compounds).

¹⁷See for e.g., Bhaven N. Sampat & Tahir Amin, *How do public health safeguards in Indian patent law affect pharmaceutical patenting in practice?*, 38 *J Health Polit Policy Law* 735–755, 743 (2013).

¹⁸Sampat and Amin, supra note 18; C. Scott Hemphill & Bhaven N. Sampat, *Evergreening, patent challenges, and effective market life in pharmaceuticals*, 31 *J Health Econ* 327–339 (2012).

¹⁹The claims for each granted patent were accessed from the IPO website page by searching the relevant application number. The applications for which the IPO had not updated the claims in their database in HTML format were not considered as a part of the study.

²⁰We assumed that if the claim for formulation/composition was presented as the main claim in a patent application, the new ingredient covered in the claim would have been the subject matter of a separate patent.

²¹The Controller of Patents is the person in charge of the IPO. See, section 77, Patents Act, 1970. See *also*, rule 129, Patents Rules, 2003.

²²The insufficient data category includes patents where the text from the specification, including the claims, was either missing or incomplete. Consequently, the claims from such records could not be retrieved by text mining and/or manually accessing such records.

²³Other studies conducted elsewhere have also identified formulations and compositions to have a major share in secondary patents. See, Amy Kapczynski, Chan Park & Bhaven Sampat, Polymorphs and Prodrugs and Salts (Oh My!): An Empirical Analysis of “Secondary” Pharmaceutical Patents, 7 Plos One e49470 (2012).

²⁴Section 3(d), Patents Act, 1970. The language of known substance shall also include known compound.

²⁵Section 3(e), Patents Act, 1970.

²⁶See, Part 3.4 for detailed scrutiny by the Controller.

²⁷See, Part 3.4 for detailed scrutiny by the Controller.

²⁸Novartis AG v Union of India, Supreme Court of India, AIR 2013 SC 1311.

²⁹Intellectual Property India, Guidelines for Examination of Patent Applications in the Field of Pharmaceuticals, October 2014 available at http://www.ipindia.nic.in/writereaddata/Portal/IPOGuidelinesManuals/1_37_1_3-guidelines-for-examination-of-patent-applications-pharmaceutical.pdf

³⁰Ajantha Pharma Ltd v. Allergan Inc, IPAB, ORA/21/2011/PT/KOL of Order no. 173 of 2013.

³¹Guidelines for Examination of Patent Applications in the Field of Pharmaceuticals, Office of the Controller General of Patents, Designs and Trade Marks 31 (2014), http://www.ipindia.nic.in/writereaddata/Portal/IPOGuidelinesManuals/1_37_1_3-guidelines-for-examination-of-patent-applications-pharmaceutical.pdf (last visited Oct 4, 2018) (*hereinafter*, the Pharmaceutical Guidelines).

³²Novartis AG v Union of India, Supreme Court of India, AIR 2013 SC 1311 at para 190.

³³Novartis AG v Union of India, Supreme Court of India, AIR 2013 SC 1311.

³⁴See for example, Application No. 679/DELNP/2009.

³⁵In the Application of Gilead Pharmasset (Sofosbuvir) Patent Application No. 6087/DELNP/2005. The order of the Controller under section 15 was later overturned.

³⁶In the Application of Bayer Healthcare AG (Sorafenib tosylate) Patent Application No. 1960/DELNP/2007. The primary patent IN/PCT/2001/00799/MUM was granted patent in 2008 (see Patent No. IN 215758).

³⁷The primary patent IN/PCT/2001/00799/MUM was granted patent in 2008 (see Patent No. IN 215758).

³⁸In the Application of Boehringer Ingelheim Pharma GmbH (Tiotropium Bromide) Patent No. 254813 and Application No. 558/DEL NP/2003.

³⁹Novartis AG v Union of India, Supreme Court of India, AIR 2013 SC 1311 at para 191.

⁴⁰Our earlier report involved analysing the rationale behind the refusal of pharmaceutical patent applications by accessing the prosecution history of rejected applications. We concluded that the IPO effectively rejected those applications using the anti-evergreening provisions.

⁴¹The Pharmaceutical Guidelines

⁴²Ibid., at page 5.

⁴³Ibid, at pages 28 to 33.

⁴⁴Novartis AG v Union of India, Supreme Court of India, AIR 2013 SC 1311

Annexure I: Valcyte case study: Pharmaceuticals beyond A61K

Though the scope of this study was confined to applications classified under A61K, it is quite possible that applications for pharmaceuticals which are not classified under A61K, for instance C07D could also contribute to the error rate of the IPO. One notable case classified under C07D is the patent for the drug Valganciclovir (Application No.959/MAS/1995) brand name, valcyte—this application was filed on 27 July 1995 by F Hoffmann-La-Roche and subsequently granted a patent on 1 June 2007.

A Non-Governmental Organization (NGO), Indian Network for People living with HIV/AIDS (INP+) filed a pre-grant opposition but was not offered a hearing by the Controller. As the patent was granted without offering a hearing to INP+, a writ petition was moved before the Madras HC challenging the grant of the patent. The High Court of Judicature at Madras (Madras HC) passed an order allowing INP+ to intervene in post grant proceedings against the same drug which was then pending before the IPO.

The patent was opposed at the post-grant stage by six interested parties, Ranbaxy Laboratories, Cipla, Bakul Pharma, Matrix Laboratories, Delhi Network of Positive People, and INP+. Significantly, the opponents challenged the patent under provisions of 2(1)(j). Based on the submissions made in the post-grant oppositions the Controller ordered an amendment to the patent to process claims restricted to single process, which was subsequently set aside on an appeal by Roche at the IPAB. The IPAB then remanded the matter back to the Controller to reconsider the matter afresh. In the second round of post-grant opposition, the patent granted to Valganciclovir was revoked by the Controller on 1 July, 2015. The patent for Valganciclovir again illustrates a case where a patent that could have been captured under the anti-evergreening provisions slipped through the patent office and was granted. Though there was an early intervention by INP+ at the pre-grant stage, INP+ had to expend resources in litigating before the HC to get a favourable relief. The post grant opposition filed by the number companies went on for 8 years and involved significant costs.⁴⁴

The patentee had further filed an appeal before the IPAB which again had to be litigated by the parties.

Valganciclovir is an anti-retroviral drug used for the treatment of active cytomegalovirus retinitis (CMV) infection, which if not treated can cause blindness in persons living with HIV. The drug has substantial public health consequences. The grant of this patent happened despite the existence of anti-evergreening provisions. The number of attempts NGOs and private companies had to undertake, and the costs and resources spent in litigation, show the effect of an error committed by the IPO when the anti-evergreening provisions are not applied properly. This case, classified under C07D, illustrates the error rate of the patent office beyond the classification A61K.

Annexure II: Data on 50 patent applications that were granted after an initial objection was raised by the IPO using the anti-evergreening provisions.

Entry	Appl. No.	Observations	Cate- gories	Novartis Standard
1	2425/DELNP/2006	Objection under section 3(d) was found not relevant and section 3(e) grounds were not sustainable owing to synergy of delivery systems. However, the order doesn't provide any reasons or data used to overcome the objections.	(I) (III) (IV)	Not Complied
2	7641/DELNP/2006	Applicant amended the claims to an antitumor composition to overcome sections 3(d) & 3(e).	(I) (II) (V)	Not Complied
3	2771/DELNP/2006	The claims do not attract section 3(d) as they relate to a novel and inventive pharmaceutical composition and not a new form of a known substance. Objection under section 3(e) was overcome by showing synergies.	(I) (II) (VII)	Not Complied
4	4861/KOLNP/2007	The superior efficacy of the invention is established through various standard clinical tests and described in the specifications and supplemental data submitted as response to FER. For objection under section 3(e), data is submitted to show that the claimed composition is statistically more significant than the use of a single ingredient composition or minor combination thereof. The initial objection called the main invention a disguised method of treatment claim. Amended claim defines active ingredients with their weight ratios to get over section 3(d) objection. Efficacy not demonstrated by comparison with closest prior art. But, by studies involving treated and control groups.	(I) (VI) (VII)	Not Complied

Entry	Appl. No.	Observations	Cate- gories	Novartis Standard
5	3698/KOLNP/2007	The claims were amended to overcome objections under sections 3(d) & 3(e). But the amended claims still seem to be a combination.	(I) (II) (V)	Not Complied
6	1711/KOLNP/2007	The claims were amended to overcome objections under sections 3(d) & 3(e). But the amended claims still seem to be a combination at a fixed ratio.	(I) (II) (V)	Not Complied
7	5195/DELNP/2008	To overcome section 3(d) objection, the applicant shows that MC-NO has a synergistic effect and increased stability after UVA exposure. To overcome section 3(e), the applicants submit that the resulting component is not a mere admixture but a new molecule demonstrating synergistic activity.	(I)	Not Complied
8	1851/KOLNP/2005	The Controller observed that efficacy has been described in different pages of the specification.	(I) (IV) (VI)	Not Complied
9	803/MUMNP/2009	For objections on sections 3(d) & 3(e), the applicants submitted that the composition of the present invention is a superior composition. Comparison data was also produced. Efficacy was not demonstrated by proper comparison.	(I) (VI) (VII)	Not Complied
10	8775/DELNP/2008	The applicant amended the claims to overcome objections under sections 3(d) & 3(e). All the essential component in the composition which showed a synergistic effect were incorporated in claim 2.	(I) (V)	Not Complied

Entry	Appl. No.	Observations	Cate- gories	Novartis Standard
11	1674/DEL/1998	<p>Therapeutic efficacy was proved taking into consideration pharmacokinetic parameters.</p> <p>The Controller decided that the claims relate to the composition which is a synergistic composition. Hence section 3(d) does not apply.</p> <p>For the section 3(e) objection, the data submitted demonstrates that the composition claimed shows superior stability and provides a formulation which is suitable for administration of voriconazole for the first time.</p>	(I) (VI) (VII)	Not Complied
12	6652/DELNP/2007	<p>Therapeutic efficacy was proved taking into consideration pharmacokinetic parameters.</p> <p>The applicant explained the unexpected results or other descriptions of the experiments showing unexpected efficacy of the composition to overcome objections under section 3(d).</p> <p>The applicant and the Controller seem to equate inventive step and sections 3(d) & 3(e).</p>	(I) (II) (VI)	Not Complied
13	1850/KOLNP/2008	The controller ordered that the present invention doesn't attract section 3(e) since it is not obvious.	(I) (II)	Not Complied
14	6315/DELNP/2006	Data submitted to show that the claimed composition is efficacious, effective and synergistic.	(I) (VI) (VII)	Not Complied
15	1899/DEL/2005	Pharmacokinetic parameters were taken into consideration to differentiate the invention from existing prior-art.	(I) (II)	Not Complied
16	2088/KOLNP/2007	The claims were amended to meet the requirements of sections 3(d) & 3(e).	(I) (V)	Not Complied

Entry	Appl. No.	Observations	Cate- gories	Novartis Standard
17	3322/KOLNP/2006	Based on the arguments submitted for novelty and inventive step, the objections under sections 3(d) & 3(e) are waived as claims do not relate to new use of known substances and is not considered as a mere admixture.	(I) (II)	Not Complied
18	4053/KOLNP/2007	The applicants submitted that the present invention is not a known form for a new substance but instead a novel and inventive composition. The applicants have also studied the pharmacokinetic profile to show the improved treatment by the instant composition, thereby satisfying the requirements of sections 3(d) & 3(e).	(I) (II) (VI) (VII)	Not Complied
19	1818/KOLNP/2006	The claims were amended to meet the requirements of sections 3(d) & 3(e).	(I) (V)	Not Complied
20	1103/KOL/2007	The specification shows the synergistic effect of the composition of the present invention. The objection for sections 3(d) and 3(e) are also waived in view of submission for inventive steps and novelty and the affidavit submitted by the applicant.	(I) (II) (VII)	Not Complied
21	3140/KOLNP/2007	Based on the guidelines and IPAB decision, the Controller concluded that the composition of the instant invention cannot be stated to be a new form of a known substance, and thus shall not attract provisions of section 3(d). The formulation of the instant invention is not a mere admixture but shown synergism /surprising result.	(I) (VII)	Not Complied

Entry	Appl. No.	Observations	Cate- gories	Novartis Standard
22	4879/KOLNP/2007	It was ordered that the claimed composition doesn't fall within the ambit of section 3(d) on the basis of the Allergan IPAB order. Objections under section 3(e) were waived as the applicant had shown different unexpected results in the reply to FER. However, the data couldn't be traced.	(I) (III)	Not Complied
23	3966/DELNP/2007	On the basis of the Allergan IPAB order and the guidelines the Controller held that the composition of the instant invention cannot be stated to be a new form of a known substance and has a synergistic effect.	(I)	Not Complied
24	3954/CHENP/2010	The product claims were deleted to overcome objections under sections 3(d) & 3(e).	(I) (V)	Not Complied
25	3105/DELNP/2007	The claims relate to a composition and the kit, hence objections under sections 3(d) & 3(e) are not attracted.	(I) (II)	Not Complied
26	1707/DELNP/2003	The reasoning used to overcome the objections are not clear.	(I) (IV)	Not Complied
27	4701/KOLNP/2007	Drug delivery carrier, claims amended after hearing (oral and written) and still a composition claim, overcome sections 3(d) and 3(e), showing "structured vesicular arrangement, improved technical effect" (data was included as an annexure)	(I) (V) (VI) (VII)	Not Complied

Entry	Appl. No.	Observations	Cate- gories	Novartis Standard
28	1779/MUM/2008	Combination of drugs as a composition, cost effective and improved dosage form. No data was reproduced in the order. Sections 3(d) and 3(e) were not raised in section 15 but only in FER. The applicant showed improved effects.	(I) (III)	Not Complied
29	2763/MUMNP/2010	No mention of sections 3(d) or 3(e) in the section 15 document. It showed how efficacy was better as a combination compared to individual ones but no data to see.	(I) (III)	Not Complied
30	3273/KOLNP/2009	Composition claim. Synergism was explained to overcome section 3(e) without any data to justify. Applicant argued against section 3(d) here, suggesting this is a combination of known active ingredient and an unknown substance.	(I) (III)	Not Complied
31	118/DELNP/2009	Applicant amended claims and argued against section 3(d) with novelty and inventive features of the compound claimed. Applicant further argued that section 3(e) is not applicable since the composition cannot be considered as mere admixture.	(I) (II) (III)	Not Complied
32	679/DELNP/2009	Applicant amended the claims and suggested that the composition is a synergistic mixture; stability profile (kinetics) was mentioned. Applicant argues that composition cannot be rejected under section 3(d) and gets it approved by the controller. Applicant submits that the composition is amenable for future phase III studies.	(I) (V)	Not Complied

Entry	Appl. No.	Observations	Cate- gories	Novartis Standard
33	2707/DELNP/2007	Applicant amended the claims and overcame section 3(d) citing that composition of two actives is not considered as a derivative of a known substance and mentioned synergism to overcome section 3(e). No data reproduced in the order. Ajantha v. Allergan (IPAB) relied on.	(I) (III) (V)	Not Complied
34	7490/DELNP/2006	Composition claim, applicant mentions having 3 active agents will have a broader efficacy. Applicant amended the claims to overcome sections 3(e) and 3(d). No data reproduced in the order.	(I) (III) (V)	Not Complied
35	1780/KOLNP/2009	Applicant overcomes section 3(d) using novelty and inventive step argument, synergistic effect data in the specification for section 3(e). Pharmacokinetics data in the specification.	(I) (II) (VII)	Not Complied
36	1074/KOL/2008	Claims amended. Applicant overcome sections 3(d) and 3(e) using novelty and inventive step argument.	(I) (II) (V)	Not Complied
37	1937/MUMNP/2008	Claims amended, applicant overcome sections 3(d) and 3(e) using 2(1) (j) argument.	(I) (II) (IV) (V)	Not Complied
38	6040/DELNP/2007	Technical objections are incorrect and synergism shown.	(I) (III) (IV)	Not Complied
39	4048/CHENP/2008	Synergism and efficacy shown to overcome sections 3(d) and 3(e).	(I) (VI) (VII)	Not Complied

Entry	Appl. No.	Observations	Cate- gories	Novartis Standard
40	1875/KOLNP/2010	Not clear but argued sections 3(d) and 3(e) using novelty; combination of components.	(I) (II) (IV)	Not Complied
41	690/KOL/2008	Coating for drug release, data shown for synergic effect to overcome section 3(e), don't see any argument to overcome 3(d)	(I) (VII)	Not Complied
42	9973/DELNP/2007	Applicant overcome section 3(d) by using novelty and inventive step argument.	(I) (II)	Not Complied
43	805/MUMNP/2011	Claims amended, but no data to show how they overcome objections.	(I) (III) (IV) (V)	Not Complied
44	2343/KOLNP/2010	Novel and inventive combination of drugs as an argument to overcome section 3(d), synergism shown and explained to overcome section 3(e) argument.	(I) (II)	Not Complied
45	968/KOL/2007	Similar clinical efficacy was shown as synergism (refer "Others" document) to overcome section 3(e), applicant argued this not a new form of a known substance. Ajantha v. Allergan (IPAB) relied on.	(I)	Not Complied
46	689/KOL/2008	Amended the claims and got the patent granted, not clear how they overcome section 3(d).	(I) (V)	Not Complied
47	9174/DELNP/2007	Applicant states superior performance and overcomes sections 3(d) and 3(e). No data reproduced in the order.	(I) (III)	Not Complied

Entry	Appl. No.	Observations	Cate- gories	Novartis Standard
48	3197/KOLNP/2007	Applicant submits data to show synergism. No data reproduced in the order.	(I) (III)	Not Complied
49	2005/KOLNP/2010	Long shelf attributed to enhanced efficacy, but no clear explanation was given on how the applicant overcome sections 3(d) or 3(e).	(I) (IV)	Not Complied
50	6556/DELNP/2008	Amended and granted, reasoning was shown in "Other Patent Documents". Novelty and inventive step argument was used to overcome section 3(d)	(I) (II) (V)	Not Complied

Notes:

- (I) The objection will not fall under section 3(d) but shall fall under section 3(e)
- (II) Objections under sections 3(d) or 3(e) was overcome using justifications under section 2(1)(j)
- (III) No data regarding therapeutic efficacy or synergism was produced in the order
- (IV) Sufficient reasons not provided in the order
- (V) The claims were amended to overcome objections under sections 3(d) or 3(e)
- (VI) Data was shown to prove therapeutic efficacy under section 3(d)
- (VII) Data was shown to prove synergistic effect under section 3(e)

Annexure III: Anti-evergreening Checklist for Examiners

1.	Section 3(d): the mere discovery of a new form of a known substance	Yes	No
	If (1) is Yes, then whether Data on enhanced efficacy provided?	Yes	No
2.	Section 3(d): the mere use of a known process, machine or apparatus	Yes	No
	If (2) is Yes, then whether evidence is provided as per Act?	Yes	No
3.	Section 3(e): category of invention obtained by a mere admixture	Yes	No
	If (3) is Yes, then whether Data on synergistic effect provided?	Yes	No
4.	Section 3(d): the mere discovery of any new property or new use for a known substance	Yes	No
5.	Section 3(i): any process for the medicinal, surgical curative, prophylactic, diagnostic.	Yes	No

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Pharmaceutical Patent Grants in India:

HOW OUR SAFEGUARDS AGAINST EVERGREENING HAVE FAILED, AND WHY THE SYSTEM MUST BE REFORMED

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